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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,661	12/04/2001	Thomas A. Figura	303.645US3	1560

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EXAMINER

HUYNH, YENNHU B

ART UNIT

PAPER NUMBER

2813

DATE MAILED: 08/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/004,661

Applicant(s)

FIGURA, THOMAS A.

Examiner

Yennhu B Huynh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-11 and 32-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☒ Claim(s) 4-11 and 32-53 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 15.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

This Office Action is in response to the RCE filed on 6/26/03.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 6/26/03 has been considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jeng et al. (U.S. 5,792,687) in view of Choi et al. (U.S. 6,410,390B1).

Jeng et al. disclose an invention for interconnections and conductors IC, which include:

-Re. claim 1: multiple semiconductor surface structures spaced apart along the substrate (figs.6 & 7), a number of plugs 40 & 41 contacting the substrate; wherein the number of plugs include an inner plug 40 and a pair or outer plugs 41; a pair of spacers 30 placed on interior walls of an opening at the inner plug 40, the pair of spacers separating the inner plug and outer plugs, the inner plug being isolated and between an adjacent pair of the semiconductor

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surface structures, a conductive material contacted the inner plug and being isolated from the pair of outer plugs by the pair of spacers 30, wherein the inner and outer plugs are formed by an initial opening in a first isolation layer on the multiple semiconductor surface structure (figs. 1,2); wherein the initial opening includes exposing portions of the multi semiconductor surface structure, and portion of the substrate between multi semiconductor surface structure (figs. 4-7); an initial conductive material 22 in the initial opening to cover the multi semiconductor surface structure; a second isolation layer across the initial conductive material and etching the initial conductive material and second isolation layer to form an opening at the inner plug and in the initial conductive material in a source region 14/16 on the substrate (fig. 4-7, col. 5 & 6, lines 18-48).

However, Jeng et al. do not disclose wherein the inner plug being isolated beneath the adjacent pair of the semiconductor surface structure and the pair of outer plugs cover the portion of adjacent pair.

Choi et al. disclose a nonvolatile memory device comprising semiconductor substrate for forming interconnections, which include an inner plug 47a beneath the pair of outer plugs 49a and the pair of outer plugs cover the portion of adjacent pair (fig. 7i, col.8, lines 39-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Jeng et al. invention by incorporating an inner plug beneath the pair of outer plugs, which the larger surface area of the outer plugs

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allows for alignment tolerance, in forming storage nodes or electrical contacts, after the bitline formed on the inner plug.

Allowable Subject Matter

Claims 4-11 & 32-53 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: Prior art does not disclose alone or in combination the structure , which include a first outer plug having an upper portion covered the top surface of each of the first and third surface structures, and a second outer plug having an upper portion covered the top surface of each of the second and four surface structures.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yennhu B Huynh whose telephone number is 703-308-6110. The examiner can normally be reached on 8.30AM-7.00PM.

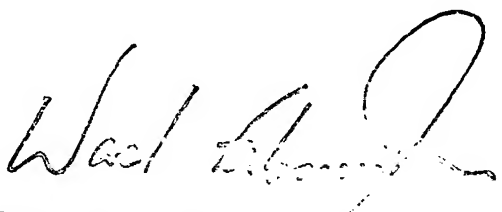
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr., can be reached on 703-308-4940.

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The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-7724.

YNBH,
8/5/03


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